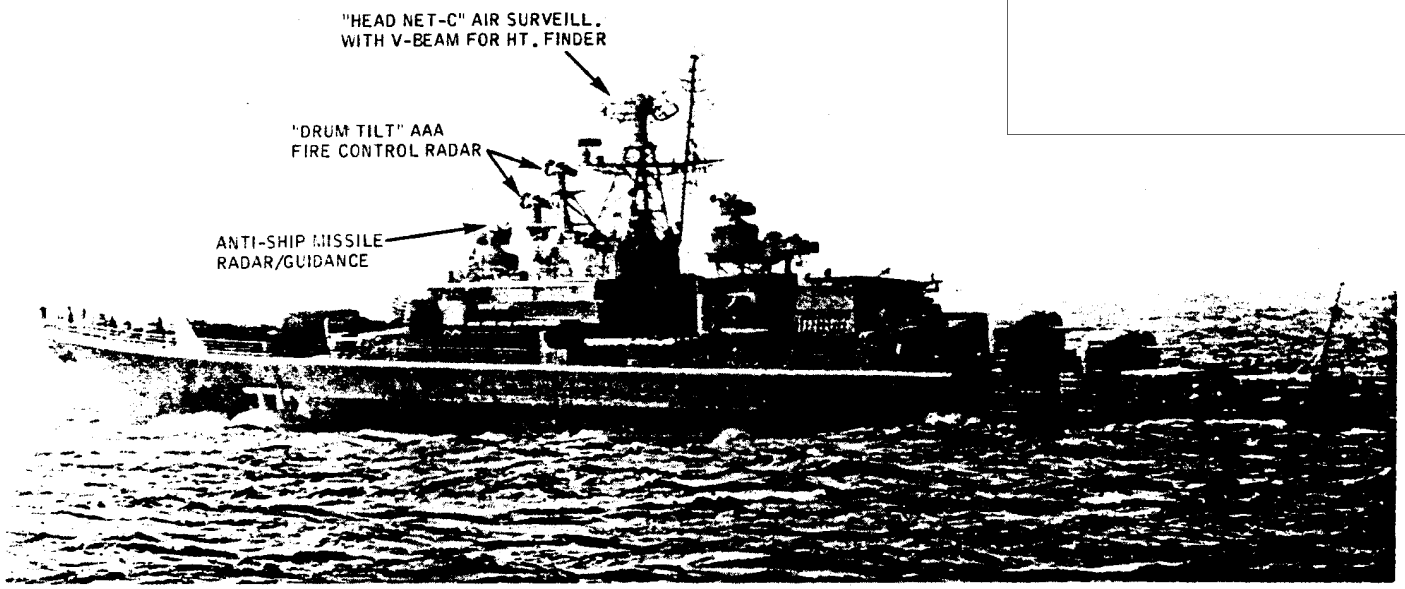


Soviet Krivak 2 destroyer operates in the Caribbean Sea as part of a Russian task force. The vessel is the Neukrotimyy (FFG-772) and one of the most heavily armed destroyers afloat. The ship is equipped with hull-mounted and variable depth sonars and has a primary antisubmarine warfare mission. The 4,000-ton destroyer is propelled by gas turbines and has a 31-kt. speed. There are at least 16 Krivak destroyers in the Soviet navy, with others under construction. Main armament includes four SS-N-14 antisubmarine warfare missiles, two twin SA-N-4 surface-to-air missile launchers, four 76-mm. antiaircraft guns and two 100-mm. dual-purpose antiship/antiaircraft guns located aft. Note the SS-N-14 launchers forward and the antiship missile radar antenna.

Aeronautical Engineering

Soviets Push Advanced Naval Weapons

By Clarence A. Robinson

Washington—Aggressive Soviet Union shipbuilding program is gaining momentum, with three new cruiser classes under construction in Baltic and Black Sea yards, including a nuclear-powered 30,000-ton vessel known as a battle cruiser.

As the Russians produce vessels from five submarine shipyards and eight surface vessel shipyards, the U. S. Navy's shipbuilding program continues to decline and may reach a point next year where as few as 10 aircraft carriers will be available in the fleet in the 1980s. Failure of the government to provide funding also is expected to force the Navy to operate with fewer than the required number of nuclear-powered attack submarines.

The new nuclear-powered battle cruiser is being built by the USSR in a shipyard at Leningrad. There is nothing comparable to the new vessel in any of the world's navies, according to U. S. officials, who added that a full array of new antiship cruise missiles, surface-to-air missiles and guns are being developed and tested for use with the battle cruiser. The ship is closer to being a modern version of U. S. battleships than a cruiser.

A new cruise missile battery concept has been developed for the vessel, and it is expected to carry new antisubmarine warfare weapons, including nuclear-armed torpedoes fired by rocket to extend the range.

Another new class of cruiser being built in the Baltic Sea area is in the 12,000-ton size armed with antiship cruise missiles and new high-speed, rapid-fire guns in the 4.5-5-in. category.

The cruiser will be conventionally powered by gas turbine and steam. It is believed to be a replacement for the Sverdlov class light cruisers, which are heavily armed gun cruisers doubling as flagships for naval formations.

The Sverdlov cruisers carry SA-N-4 surface-to-air missiles, 12 6-in. guns in four mounts, 12 100-mm. guns, 10 torpedo tubes, and 32 37-mm. air defense guns. They cruise at 32 kt.

The third new class of Soviet cruiser is being built in a shipyard on the Black Sea. It is in the 13,000-ton category and is believed to be a replacement for the Kara class guided missile cruiser first seen at sea in 1973. The new cruiser is, like the Kara, powered by gas turbines. But it is larger and has more firepower than the Kara, already considered heavily armed with:

- Eight SS-N-14 antisubmarine-warfare missiles carrying acoustic homing torpedoes.
- Two twin SA-N-3 Goblet surface-to-air missiles.
- Two twin SA-N-4 surface-to-air missile launchers.
- Four 76-mm. guns in two twin mounts.
- One Kamov Ka-25 Hormone ASW helicopter.

The Soviet Union is building 12-13 submarines a year and now has several titanium hull attack submarines called Alphas at sea.

The vessels are capable of high submerged speeds, greater operational depths than their predecessors and are more difficult to locate than conventionally constructed boats. The Alpha submarines are nuclear-powered and may be quieter than other nuclear-powered Soviet attack submarines.

U. S. officials said the Soviets also are building a new nuclear-powered, ballistic-missile-firing submarine called the Typhoon as a follow-on to the Delta class ballistic missile submarines that carry SS-N-8 missiles armed with nuclear warheads.

The SS-N-8 has a range of more than 4,000 naut. mi., about equal to the Navy/Lockheed Trident 1 ballistic missile still in development.

The Soviet Delta 2 ballistic missile submarine is a lengthened version of the basic Delta boat, which can carry 16 ballistic missiles, including the new SS-

NX-18 with multiple independently targetable reentry vehicles.

The U. S. Navy completed construction in the mid-1960s of 41 ballistic missile Polaris and Poseidon submarines armed with 656 ballistic missiles. Since that time the Soviets have produced 63 ballistic missile submarines, bringing their total to 90 armed with 1,028 ballistic missiles.

On at least two occasions the Russians began sea trials with ballistic missile submarines before they dismantled older intercontinental ballistic missiles to permit the addition of the submarine ballistic missiles to their inventory as permitted under the interim offensive Strategic Arms Limitation Treaty (SALT 1).

While still building diesel-electric-powered submarines, the Russians are turning out two Charlie 2 class nuclear-powered cruise missile submarines every three years.

Charlie class boats are armed with eight SS-N-7 antiship missiles, but the Soviets have instituted a new cruise missile development program to provide improved weapons, including a new generation of antiship cruise missiles.

The SS-N-12 cruise missile with its 300-naut. mi. range is used with Echo 2 nuclear-propelled boats and on surface vessels as a replacement for the SS-N-3 Shaddock cruise missile. While the SS-N-12 is still being deployed, another new follow-on cruise missile is in development in Russia.

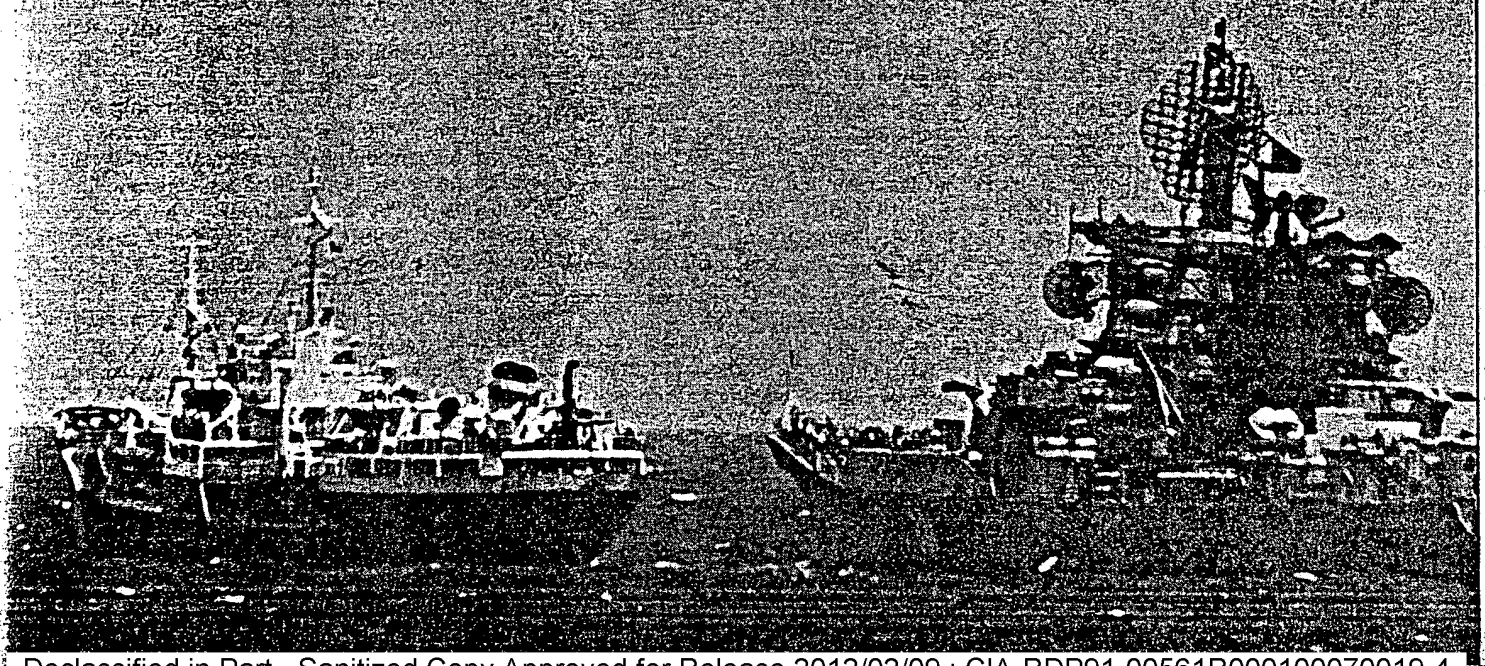
The new follow-on to the surface-to-surface SS-N-12 is expected to have an air-to-surface capability as well.

The Soviet Union now operates 92 attack and cruise missile submarines.

The U. S., in contrast, has 78 boats, including the Fiscal 1980 funding for one SSN 688 Los Angeles-class boat, which will be equipped with Mk. 48 torpedoes and the Navy/McDonnell Douglas Harpoon antiship missile.

At the rate of one attack submarine per

U. S. Navy/Lockheed P-3C antisubmarine warfare patrol aircraft observes Soviet naval operations last month in the Caribbean. The Soviets sent a task force composed of a Kresta 2 guided-missile cruiser, a merchant tanker, a Krivak 2 destroyer and a nuclear-powered submarine into the Caribbean area. The P-3C from Navy Squadron VP-56 flies over the cruiser Admiral Nakhimov and the tanker Tukums. The USS Forrest Sherman, a destroyer, shadowed the Soviet task force and took the photographs.



year now being provided by the Administration and Congress, the Navy will fail to reach its requirement of 90 attack submarines in the mid-1980s.

The attack submarine force in the U. S. Navy now includes 657 and 594-class boats that are operating with the 688 submarines.

Despite a decision by the Carter Administration to begin construction of a new fast attack submarine in Fiscal 1983, the U. S. needs to lay at least three submarine keels per year to meet the fleet requirements for attack boats.

In recent years, funding has been provided for only one 688-class submarine each year.

Inventory Decline

The Navy's aircraft carrier inventory also is suffering and will decline further. There is already a shortage of fighter aircraft required to maintain at least 12 carriers in the fleet, and it now appears inevitable that the service's program to extend aircraft carrier life in the fleet will run at least a year beyond the retrofit schedule.

The Navy planned to begin the carrier overhaul program by upgrading the USS Saratoga in 24 months. After the lead ship overhaul, the service planned to continue the program to extend the life of all the four Forrestal class carriers. But the 28-month program has now slipped to a 32-month program, and may slip further to about 36 months. The cost of the modification for the Saratoga has almost doubled, to $500 million. At this service life extension rate, the Navy may not have enough carriers to operate with 12 in the fleet.

Mission Reexamination

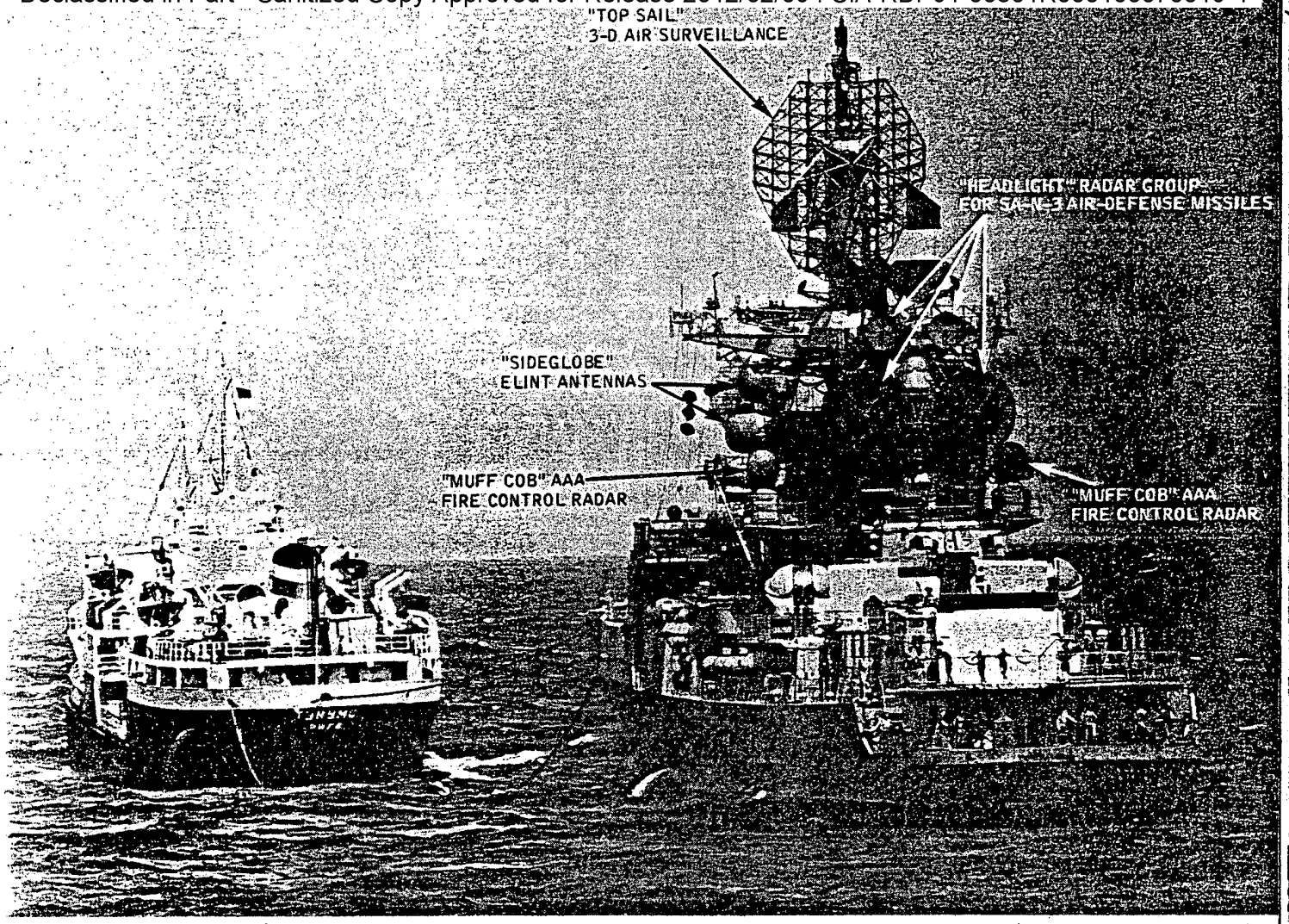
On this basis, and because of serious cutbacks in the Navy's shipbuilding program brought about by fiscal restraints, a number of top-level Pentagon officials believe the Navy's mission must be reexamined and that the future ability of the Navy to respond adequately to requirements set by the U. S. is in jeopardy.

As the U. S. Navy fleet shrinks to fewer than 400 vessels, the Soviet Union's naval expansion program continues at the 13 shipyards, described as "big and impressive" by U. S. officials, who believe that the USSR is still working toward full capacity of the installations.

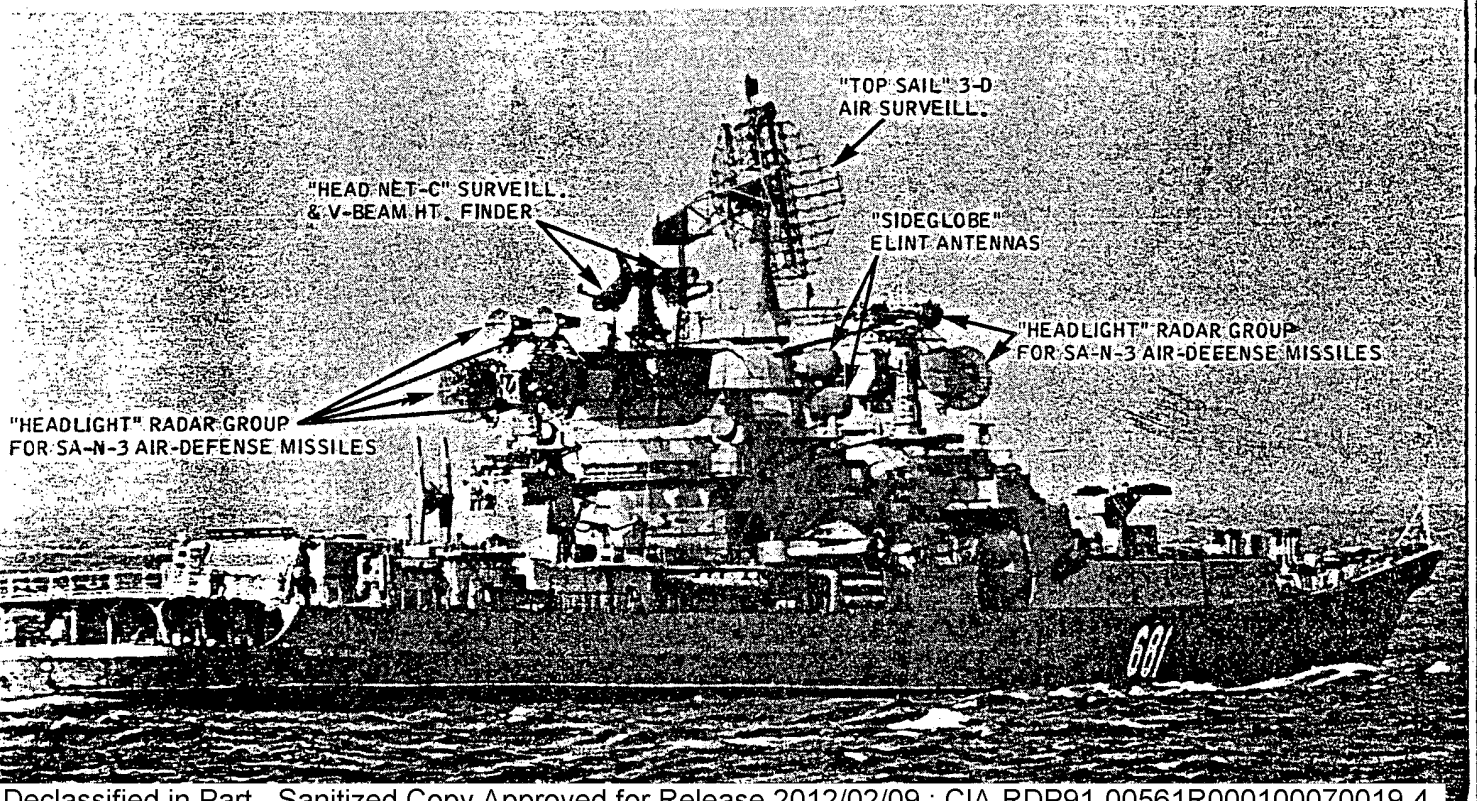
The new battle cruiser in Leningrad is expected to be used for Soviet naval power projection and as an escort for a large-deck, 50,000-ton nuclear-powered aircraft carrier (AW&ST Aug. 20, p. 14).

Carriers are believed to be critical to the Soviet plan to produce a large "blue water" fleet.

The U. S. has satellite photography of catapult and arresting gear tests in the Soviet Union with an aircraft that appears to be a modified MiG-27 strengthened for



Soviet Union Kresta 2 guided-missile cruiser is refueled by the Russian Yelgava merchant tanker Tukums (above) in the Caribbean last month. A Soviet flotilla composed of a Kresta cruiser, Krivak 2 destroyer and a nuclear-powered submarine entered the Caribbean accompanied by the merchant tanker (AW&ST Aug. 20, p. 14). The Kresta 2 cruiser, the Admiral Nakhimov (CG 681, below) displaces 7,500 tons and can reach speeds of 32 kt. The ship's main armament consists of eight SS-N-14 antisubmarine missiles, two twin SA-N-3 Goblet surface-to-air missile launchers, four 57-mm. antiaircraft guns and a Ka-25 Hormone ASW helicopter. Note electronic intelligence Sideglobe antennas and Headlight radar antenna for the SA-N-3 missile. The Kresta carries 10 torpedo tubes.



carrier operations. Because the catapult system was designed for launch in either direction, some analysts believed it could be associated with ground-based expeditionary operations. But it was soon realized that land-based tests would be conducted using both ends of a catapult system because the wind shifts. At sea, a carrier can turn into the wind to conduct operations.

The next logical step, according to U. S. officials, is for the USSR to combine nuclear propulsion with an aircraft carrier, which some officials believe is taking shape near Murmansk.

U. S. officials believe the Soviets are now developing a follow-on vertical/short takeoff and landing (V/STOL) aircraft to operate on Kiev class ASW carriers to replace the Yak-36 Forger now on the Kiev and Minsk carriers. The Yak-36 has been detected firing rockets and performing missions usually associated with fighter aircraft.

The second Yak-36 squadron on the Minsk is equipped with improved Forger aircraft more capable than the original force on the Kiev.

The Soviets have been using their carriers to show the flag to third world nations, particularly in the Indian Ocean, where the Minsk operated for three weeks making port calls.

The Soviets also have been conducting the largest naval exercise since Okean 75 in the Greenland-Iceland-United Kingdom Gap using the Kiev. The exercises are termed more complex, with more ships, than any in recent years.

Tupolev Backfire bombers are still being introduced into Soviet naval aviation units to replace Tupolev Tu-16 Badger regiments as the aircraft come off the production line. Half the Backfires are earmarked for strategic missions in Soviet long-range aviation units, and the other half are intended for Navy use.

Deployment of new Tu-142 Bear F aircraft to naval aviation is continuing even though the Backfire force is increasing, according to U. S. officials.

House Unit Slates Navy Fleet Probe

Washington—President Jimmy Carter's five-year shipbuilding plan is being questioned in Congress, and the House Armed Services seapower subcommittee will hold hearings on the decline of U. S. Navy fleet. Rep. Charles E. Bennett (D.-Fla.), seapower subcommittee chairman, responded to subcommittee members' requests for hearings and informed Defense Secretary Harold Brown of his deep concern over the proposed reductions (AW&ST Aug. 27, p. 12) in the planned shipbuilding program.

Rep. Bennett's response was in reaction to Rep. Paul S. Trible, Jr. (R.-Va.), who questioned in the House the President's plan to reduce Navy shipbuilding from a planned 67 to 46 vessels from Fiscal 1981 through Fiscal 1985.

Rep. Trible wrote to Rep. Bennett citing the Armed Services Committee's report in the Fiscal 1980 Defense Authorization Act, which concluded that the Administration's shipbuilding plan proposed last January is insufficient to meet Navy needs. "A further reduction in the procurement of 21 ships must give rise to serious concerns regarding our nation's economic viability and security," Rep. Trible wrote Rep. Bennett.

He added that during the SALT 2 ratification debate, "when there are increasing signs of instability in many regions of the world, and when the United States and her allies are ever more dependent on the free and unthreatened use of the seas for energy and other raw materials necessary to fuel our economy and satisfy defense requirements, a further decrease in our naval capability would appear to be blatant disregard of our vital national interest."

The other members of the seapower subcommittee expressed concern and joined Rep. Trible, whose district includes Newport News Shipbuilding and Dry Dock Co., in writing to Rep. Bennett seeking an early hearing date "to address the adequacy of the Administration's current five-year shipbuilding plan."